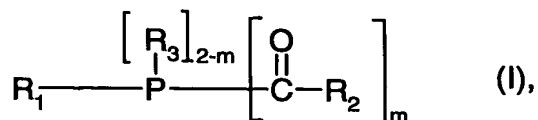


## Claims

1. A process for the preparation of acylphosphines of formula (I)



wherein

m is 1 or 2;

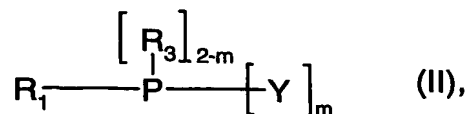
$\text{R}_1$  is  $\text{C}_1\text{-C}_{18}$  alkyl,  $\text{C}_2\text{-C}_{18}$  alkyl which is interrupted by one or several non-successive O atoms, phenyl substituted  $\text{C}_1\text{-C}_4$  alkyl,  $\text{C}_2\text{-C}_8$  alkenyl, phenyl, naphthyl, biphenyl,  $\text{C}_5\text{-C}_{12}$  cycloalkyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl,  $\text{C}_5\text{-C}_{12}$  cycloalkyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen,  $\text{C}_1\text{-C}_8$  alkyl,  $\text{C}_1\text{-C}_8$  alkylthio and/or  $\text{C}_1\text{-C}_8$  alkoxy;

$\text{R}_2$  is  $\text{C}_1\text{-C}_{18}$  alkyl,  $\text{C}_3\text{-C}_{12}$  cycloalkyl,  $\text{C}_2\text{-C}_{18}$  alkenyl, phenyl, naphthyl, biphenyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl or 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to four  $\text{C}_1\text{-C}_8$  alkyl,  $\text{C}_1\text{-C}_8$  alkoxy,  $\text{C}_1\text{-C}_8$  alkylthio and/or halogen;

$\text{R}_3$  is  $\text{C}_1\text{-C}_{18}$  alkyl,  $\text{C}_2\text{-C}_{18}$  alkyl which is interrupted by one or several non-successive O atoms; phenyl substituted  $\text{C}_1\text{-C}_4$  alkyl,  $\text{C}_2\text{-C}_8$  alkenyl, phenyl, naphthyl, biphenyl,  $\text{C}_5\text{-C}_{12}$ -cycloalkyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl,  $\text{C}_5\text{-C}_{12}$  cycloalkyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen,  $\text{C}_1\text{-C}_{18}$  alkyl,  $\text{C}_1\text{-C}_8$  alkylthio and/or  $\text{C}_1\text{-C}_8$  alkoxy;

by

(1) reacting organic phosphorus halides of formula (II)



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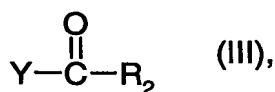
wherein  $R_1$ ,  $R_3$  and  $m$  have the meaning cited above;

and  $Y$  is Br or Cl,

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with an alkali metal in a solvent in the presence of an activator, wherein the alkali metal is present in the form of a dispersion of alkali metal particles having a mean particle size of  $\leq 500 \mu m$  in the solvent,

(2) subsequent reaction with acid halides of formula (III)



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wherein  $R_2$  and  $Y$  have the meaning cited above;

which process is carried out without isolation of the intermediates.

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2. The process according to claim 1, wherein  $R_1$ ,  $R_2$  and  $R_3$  are independently from each other phenyl, naphthyl and biphenyl, being unsubstituted or substituted by one to five halogen,  $C_1$ - $C_8$  alkyl and/or  $C_1$ - $C_8$  alkoxy.

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3. The process according to claim 2, wherein  $R_1$  and  $R_3$  are phenyl and  $R_2$  is 2,4,6-trimethylphenyl.

4. The process according to any one of claims 1 to 3, wherein the alkali metal is sodium.

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5. The process according to any one of claims 1 to 4, wherein the activator is chlorobenzene and/or *n*-butanol.

6. The process according to any one of claims 1 to 5, wherein the alkali metal is dispersed in the solvent by means of a high speed turbine stirrer.

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7. A process according to any one of claims 1 to 6, wherein from 4 to 8 atom equivalents of the alkali metal are used for the preparation of compounds of formula (I), wherein m is 2, and 2 to 4 atom equivalents of the alkali metal are used for the preparation of compounds of formula (I), wherein m is 1.
- 5 8. A process according to any one of claims 1 to 7, wherein the reaction (1) of the organic phosphorus halides (II) with an alkali metal is carried out in the temperature range from -20° to +160°C.
- 10 9. A process according to any one of claims 1 to 8, wherein the reaction (2) of the metallised phosphine with the acid chloride (III) is carried out at -20° to +120°C.
- 15 10. A process according to any one of claims 1 to 9, wherein the reaction steps (1) and (2) are carried out in toluene or ethyl benzene as solvent.